

# EUROPEAN PATENT OFFICE

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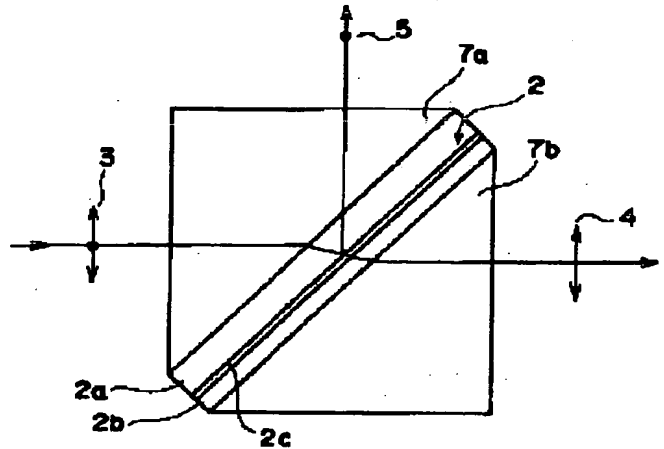
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TITLE : POLARIZER



**ABSTRACT :** PURPOSE: To suppress degradation in degree of polarization as far as possible even under a thermal stress or dynamical external stress by decreasing the photoelastic constants of transparent substrates to substantially zero.

**CONSTITUTION:** This polarizer is constituted by forming  $\geq 2$  layers thin films varying in refractive index from each other on the surfaces of transparent substrates 7a, 7b and selects and emits light 4, 5 having specific vibration directions by utilizing the dependency of the reflectivity and transmittance of rays 3 at the boundary faces of the respective thin films on polarization. The photoelastic constants of the transparent substrates 7a, 7b are decreased to substantially zero. The term 'the photoelastic constants are substantially zero' refers to about a value at which the influence to be exerted on reading out light 9 by an optical path difference based on the optical anisotropy of the transparent substrates 7a, 7b is negligible. As an example, the photoelastic constants suffice if the value thereof is in a range from -0.1 to 0.1 [ $10^{-8}\text{cm}^2/\text{Nl}$ ] for light of a wavelength 500 to 650nm. The transparent substrates 7a, 7b have the substantial optical anisotropy and the optical path difference is substantially not generated in the light propagating in the transparent substrates 7a, 7b even if the thermal stress and dynamic external stress are generated in the transparent substrates 7a, 7b.

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